Editorial

Allergic reactions from tissue adhesives in spine surgery: a sticky situation

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The article "*Allergic contact dermatitis to Dermabond Prineo after abdominal wound closure for anterior lumbar interbody fusion: case report*" by Coppola, Tobin, and Lawrence describes a rarely reported complication of a commonly used surgical tissue adhesive (1). Dermabond (Ethicon, Somerville, NJ, USA) is a popular skin adhesive for surgical wounds, owing to its ease of use, quick curing time, and antimicrobial properties (2). Additionally, it has shown an excellent safety profile in spine surgery, with a majority of complications that do occur being mild dermatitis reactions (3-5). Coppola *et al.* discuss a case of a type IV hypersensitivity reaction to Dermabond Prineo following its use for an anterior lumbar interbody fusion incision, and importantly noted that the patient had previously been exposed to tissue adhesives for prior surgical wound closure without issue. While infrequent, similar cases have been reported.

A recent article by Zhang *et al.* discusses a similar pruritic dermatitis reaction following the use of Dermabond Prineo for an anterior cervical surgical wound (6). Similar to Coppola *et al.*, the patient was treated by removal of the adhesive coated mesh followed by topical corticosteroids and oral diphenhydramine. Additionally, they utilized oral corticosteroids and an oral antibiotic regimen with good effect. Two additional cases of similar dermatitis following tissue adhesive applications were reported in a 2014 correspondence in patients previously exposed to Dermabond (7). A dermatologic study by Asai *et al.* in 2021 investigated rates of allergic contact dermatitis following exposure to Dermabond in 577 patients using patch testing (8). They found 9 patients (1.5% prevalence) who experienced dermatitis from Dermabond, all of whom had prior asymptomatic exposure, with an average time from application to onset of reaction of 34 days.

While the literature surrounding these reactions in spine surgery is sparse, it demonstrates effective methods for managing the symptoms following adhesive induced dermatitis. Remaining adhesive should be removed from the skin, antihistamines such as diphenhydramine can be administered, as well as oral or topical corticosteroids. Consideration should be given to the possibility of an increased risk for surgical site infection from application of a topic corticosteroid on a recent surgical wound, and while this has not been previously investigated, prior literature has shown efficacy in the healing of topical corticosteroids for chronic wounds and burn wounds (9,10).

One of the biggest considerations for surgeons facing similar reactions to tissue adhesives is differentiation between contact dermatitis and a surgical site infection. While both are likely to present with erythema, contact dermatitis is expected to be more pruritic and may have associated vesicles, while a surgical site infection would be expected to present with more pain, induration, and possible drainage. That being said, both can present in

similar fashions, and should be monitored closely by the treating physician. Prophylactic antibiotics, such as those used by Zhang *et al.* may be warranted if the etiology of the reaction is not clear (6). Patients should then be closely monitored, so that if a reaction declares itself as a soft tissue infection, it can be managed expediently. Consultation of a dermatologist or allergist may also be considered in refractory cases.

While this complication of Dermabond may make practitioners wary of its use, it is important to remember this complication is uncommon, and the antimicrobial benefits likely outweigh the overall risks, especially given the high morbidity associated with a postoperative spine infection. Clinicians should remain cognizant of the possibility of contact dermatitis, particularly in patients who have had prior exposure to tissue adhesives. One might consider asking patients preoperatively about prior tissue adhesive exposure, and counselling those with prior exposure on the possibility of a contact dermatitis reaction. Fortunately, the treatment for this reaction is benign, and response to these modalities appears to be good, with full resolution of the dermatitis within a few days.

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